

On the Role of Palatalization in the Vulgar Latin Sound Change /w/ > /β/*

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1. Our paper focuses on two convergent Vulgar Latin sound changes, i.e. the intervocalic fricativization of the bilabial voiced stop phoneme /b/ and the labial velar semivowel phoneme /w/ to the bilabial voiced fricative [β].¹ Regarding the latter, i.e. /w/ > [β], Stephens (1988) proposes that the palatalization of /w/ promoted the fricative pronunciation [β], and tries to demonstrate, on the basis of spelling variation in Vulgar Latin inscriptions, that in word-internal position the fricative pronunciation (represented by V → B substitution) was significantly more frequent in palatalizing (i.e. before front vowels *i* and *e*) than in non-palatalizing environments (i.e. before back vowels *a*, *o* and *u*).²

If you take a look at the tables 1–3 of Stephens (1988: 427–428) below, you can see that he deduced there was a salient frequency of the B/V confusions before front vowels *i* and *e*. However, he did so without a proper distributional analysis and based his hypothesis on data from Barbarino's 1978 monography on the *b/v* merger. Barbarino (1978: 153–154) gave the rates of V → B substitution before verb endings of the active perfectum (such as COMPARABIT for *comparavit*, COMPARABERVNT for *comparaverunt* and COMPARABERAM for *comparaveram* etc.), where /w/ is always followed by /i(:)/ or /e(:)/,³ and in other intervocalic positions (i.e. without distinction before all front and back vowels such as VIBI for *vivi*, VIBA for *viva*, VIBO for *vivo* etc.) separately.

	V→B	V→V	N		V→B	V→V	N
<i>perfectum</i>	48.31%	51.69%	89	<i>perfectum</i>	56.00%	44.00%	150
other /V__V	23.72%	76.28%	56	other /V__V	44.57%	55.43%	525
	odds ratio = 3.006				odds ratio = 1.1583		
	$\chi^2 = 15.593$				$\chi^2 = 6.113$		
Table 1. Rate of the substitution V→B in the perfectum compared to the rate in other intervocalic environments including following back vowels: North Africa.				Table 2. Rate of the substitution V→B in the perfectum compared to the rate in other intervocalic environments including following back vowels: Rome and South Italy.			

	V→B	V→V	N	Tables 1–3 of Stephens (1988: 427-428)
<i>perfectum</i>	30.41%	69.59%	444	
other /V__V	24.29%	75.71%	1165	
	odds ratio = 1.361			
	$\chi^2 = 6.244$			
Table 3. Rate of the substitution V→B in the perfectum compared to the rate in other intervocalic environments including following back vowels: combined data from all regions.				

Stephens' first three tables, as he himself admits (1988: 428), while suggestive, do not constitute rigorous tests of the saliency of a following front vowel in promoting the change of [-w-] to [-β-]. For such a test, he emphasises, we obviously require separate data on the rates of V → B substitution before front vowels (*e*, *i*) and back vowels (*a*, *o*, *u*). As such information had never been published, Stephens (1988: 428–429) collected it from South Italian inscriptions, utilizing precisely the same source as Barbarino, namely Diehls' collection of

* The present paper has been prepared within the framework of the project OTKA (Hungarian Scientific Research Fund) No. K 108399 entitled "Computerized Historical Linguistic Database of Latin Inscriptions of the Imperial Age" (see: <http://lldb.elte.hu/>) and of the project entitled "Lendület ('Momentum') Research Group for Computational Latin Dialectology" (Research Institute for Linguistics of the HAS). I wish to express my gratitude to Zsuzsanna Sarkadi for her help in the revision of the English text.

¹ As for the Vulgar Latin merger of /b/ and /w/ cf. Herman (2000: 38–39 and 45–46), Adams (2007: 626ff), and Adamik (2017).

² As for the proper palatalization (i.e. of [k]/[g]/[t]/[d] either before a [j] developed from [e] or [i] before another vowel or before syllabic [e] and [i]) in Vulgar Latin cf. Herman (2000: 42–45).

³ By Stephens 1988: 421 (:) means "either long or short".

selected Christian inscriptions.⁴ As a labour-saving strategy, he confined his analysis to intervocalic environments other than the perfectum supplemented by Barbarino's counts of the perfectum. Then Stephens (1988: 429) cross-classified his classification of the morphemes containing /w/ by vocalic frontness, based on whether the /w/ is followed 1) invariably by front vowels (like *civīs* and *civitas*), 2) sometimes by front vowels, sometimes by back vowels (e.g. *vivī*, *vivā*, *vivus* etc.), and 3) invariably by back vowels (like *ayunculus*). His results are displayed in his table 4 (1988: 429, see below). The hierarchy observed by Stephens, i.e. the statistically significant prevalence (47.87%) of the V→B substitution in the morphemes containing /w/ followed invariably by front vowels *e* or *i* (i.e. of his class 1), is in perfect accord with his hypothesis that the change [-w-] > [-β-] was promoted by palatalization.

Tables 4–5 of Stephens (1988: 429-430)					
/w/ followed by	Rate of V→B	N	Following vowel	Rate of V→B	N
1) invariable [-back]	47.87%	94	/__i(:)	55.36%	56
2) variable [+/-back]	19.30%	57	/__e(:)	36.84%	38
3) invariable [+back]	16.67%	6	/__[+back]	16.67%	6
c = 0.243 χ ² = 13.564			c = 0.0812 χ ² = 5.336		
Table 4: Gradient of the rates of V→B reflecting the predicted hierarchy according to palatalizing environment and morpheme class: my data supplemented with Barbarino's data on the perfectum: South Italy.			Table 5: Gradient of the rate of V→B reflecting the hierarchy of palatalizing effectiveness of the following vowel: data as in table 4.		

As a next step, Stephens (using the same data as before) continued to test his hypothesis by dividing front vowels into high and mid front vowels, based on the typological evidence that high front vowels /i(:)/ promote palatalization to a greater degree than mid front vowels /e(:)/. As displayed in his table 5 (1988: 430, see above), as for the V → B substitution he found a predominance of the position before high front vowels /i(:)/ (by 55,36%) over the position before mid-front vowels /e(:)/ (by 36,84%), which is perfectly in accordance with his hierarchy of palatalizing effectiveness. Stephens (1988: 430) took this obvious prevalence of the position before high front vowels (by 55,36%) for a “very strong evidence in favor of the palatalization hypothesis”.

Stephens (1988: 431) concludes his study as follows: “statistically controlled evaluation of phonetically and morphologically cross-classified data on the rates of the spelling substitution V → B in inscriptions from South Italy, supplemented by other material, confirms the hypothesis motivated by phonetic and typological considerations that palatalization differentially promoted the fricativization of intervocalic /w/ in Latin.”

2. A revision of this palatalization hypothesis is, however, reasonable on more than one score. Firstly, in Stephens' analysis all the rates of V → B substitution were calculated in proportion to the corresponding correct spellings, that is, all frequency data were calculated according to the method of Barbarino (1978). This method is nowadays regarded outdated, since the involvement of cultural factors distorts and misrepresents the linguistic reality, see Adamik (2012: 128-129) and Adams (2007: 626). Secondly, the predominance of the intervocalic environment before /i(:)/ over the intervocalic environment before /e(:)/, as displayed in his table 5 (see above), might be proved illusory and irrelevant, since Stephens' data coming from Southern Italian Christian inscriptions belong to a developmental stage of the Vulgar Latin vowel system where the originally short /i/, the originally long /e:/, and, in unstressed syllables, the originally short /e/ have already merged into a single phoneme, the closed /e/.⁵ Since in the Latin of Southern Italy (just like in that of most Romance areas except

⁴ ILCV = Diehl, E. (1961). *Inscriptiones Latinae Christianae Veteres* 1-3. Berlin.

⁵ Cf. Herman (2000: 30-34).

for Sardinia) only the originally long /i:/ remained as /i/, only the position before long /i:/ can be taken into account for establishing a hierarchy for palatalizing effectiveness between high and mid front vowels, while “the rarity of /i:/ and /e:/ in the sample precludes reliable estimation of the V → B rates before them” (Stephens 1988: 430). Thirdly, there is no relevant counter-argument against also involving in the survey the word-initial and post-consonantal spelling confusions between B and V (beside the intervocalic ones) and also the substitutions B → V (beside the items of V → B). Finally, no information is given about the relationship of the frequency of the V/B confusion before *i* to the general frequency of *b/v* before *i* (i.e. *bi/vi* syllables) in Latin, whereas the frequency or saliency of the former can only be determined in the light of the latter, as we shall later see.⁶

Accordingly, in our paper we intend to test the palatalization hypothesis of Stephens against a distributional analysis of all types of B/V confusions with regard to the quality of the following vowel and to the approach of statistics of phonemes, on data sets recorded (by Lupinu 2000) from Sardinia and (by the LLDB-Database⁷) from other areas potentially relevant to the issue in question.

Before doing so, first we must deal with the part in Stephens’ study which presents the scarce antecedents of his thesis in literature. Here Stephens shortly discusses the remarks of Baehrens who (in his 1922 commentary on Appendix Probi) first observed a saliency of the V → B substitution before *i* on inscriptions and first emphasized the role of subsequent *i* in the *v > b* change.⁸ Stephens (1988: 426) judges on Baehrens’ findings as follows: “Baehrens’ observation of the evidently quite frequent substitution V → B before *i* is suggestive, and it is surprising that it has never been subjected to an adequate statistical test. Baehrens relies, however, on cases of /w/ in word initial position or in the initial position of the second elements of compounds. Perhaps it was suspected that the high frequency of words such as *vixit*, *vivus*, *vir*, etc. in inscriptions merely created the illusion of a predominance of a following *i*, whereas the rate of the substitution might be the same in the less frequent words with other vowels following /w/. This in fact turns out to be the case for word initial /w/.”⁹

As for Baehrens’ observations, Stephens (1988: 427) adds that: “These results, however, cannot be extended automatically to word medial position.” Yet he does not give a reason why not, but keeps arguing on the relevance of following front vowels in word medial (meaning, in fact, intervocalic) position.

3. If we, however, take into consideration the charts on later Sardinian material (based on Lupinu’s exhaustive data sets; see table 1 below) regarding B/V confusions in distribution of subsequent different vowels both in intervocalic (1a) and word-initial positions (2a), and compare them with those parallel charts (1b and 2b) displaying the distribution of the relevant lexical items yielding relevant confusions (likewise in distribution of subsequent different vowels), we can immediately see that in later Sardinian material the V → B substitution before *i* is represented mostly by the perfectum form (RE)QVIEBIT for (*re*)*quievit*. Its high frequency by (39%+25%=) 64% in the intervocalic chart 1b) is really comparable with that of BIXIT for *vixit* by 78% in the word-initial chart 2b), especially if we contrast the 36% rate of

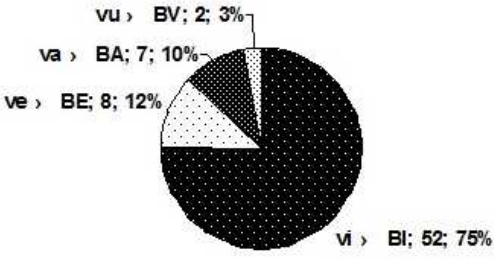
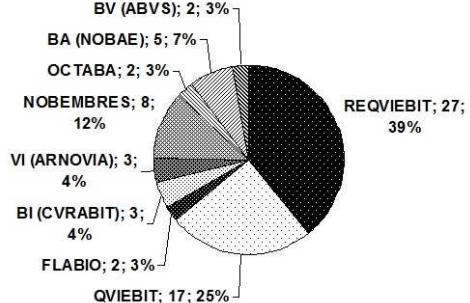
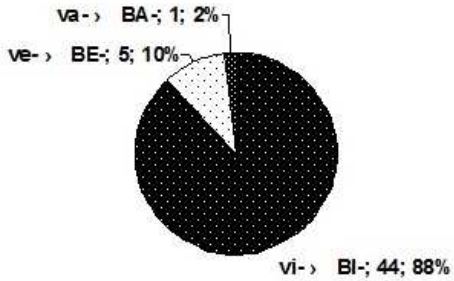
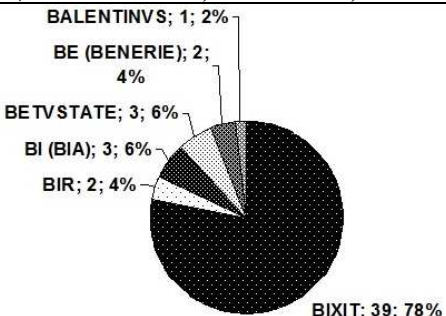
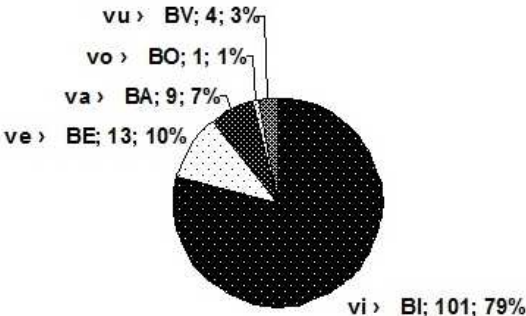
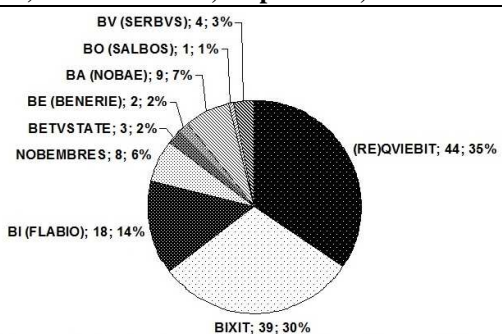
⁶ Such a statistical approach of phonemes was effectively applied by J. Herman to the research of Vulgar Latin phonology as early as 1968 (Herman 1968=1990).

⁷ LLDB = Computerized Historical Linguistic Database of Latin Inscriptions of the Imperial Age (<http://lldb.elte.hu/>).

⁸ Baehrens (1922) 80: “In einer anderen Gruppe hat der gleichfolgende Vokal den Lautwandel *v > b* veranlaßt... Besonders *unibyria* zeigt, daß ... das zu *y* gewordene *i* den Lautwandel *v > b* verursachte.” (*unibyria* = *univiria*).

⁹ In saying this, Stephens certainly relied on Baehrens’ next observation (Baehrens 1922: 80): “Etwa die Hälfte sämtlicher Beispiele für anl. *v > b* bilden die inschriftlich häufigen Formen *bivus* = *vivus* und *bixit* = *vixit*; vor allem findet sich nun aber *bivus* in der festen Formel *se bivo* und *se bivus* ... und *bixit* steht nicht selten in der Verbindung: *qui bixit annos* ...”

(RE)QVIEBIT to the 30% rate of BIXIT in the chart 3b) displaying the distribution of the related words in all positions as for B/V confusion.¹⁰

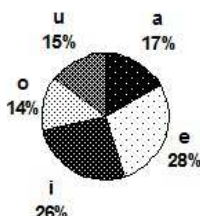
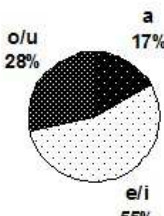
Table 1: Later Sardinia (cent. 4-6 AD) based on Lupinu (2000)	
1a) Later Sardinia, intervocalic, 69 = 100% 	1b) Later Sardinia, intervocalic, 69 = 100% 
2a) Later Sardinia, word-initial, 50 = 100% 	2b) Later Sardinia, word-initial, 50 = 100% 
3a) Later Sardinia, all positions, 128 = 100% 	3b) Later Sardinia, all positions, 128 = 100% 

The changing trends in the use of words like *quievit* or *requievit* in Christian inscriptions (replacing earlier *hic situs/sita est* and the like) manifesting in their mass occurrence in Sardinia might be relevant for the problem here concerned, but should not be overestimated. Similar distributional patterns of other late provinces as for the vocalic environment after B/V confusions, like those of Apulia et Calabria in South Italy and Dalmatia (cf. charts 1a) and 2a) in Table 4 below) at the same time yielding only one single item of REQVIEBIT (in Apulia et Calabria LLDB-28415, in Dalmatia LLDB-3142) remind us that more general rules must be

¹⁰ ‘All positions’ means that also post-consonantal items (such as INBICTO for *invicto*) are included here. Those lexical items occurring once or twice are referred to as totalized and exemplified by one single characteristic item in the charts, like in 3b: “BI (FLABIO); 18” means that 18 items of this kind are recorded, like 2 *Flabio*, 1 *provinciae*, 1 *curabit* etc.

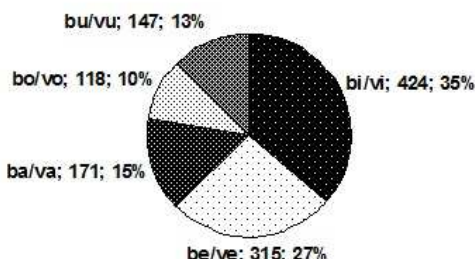
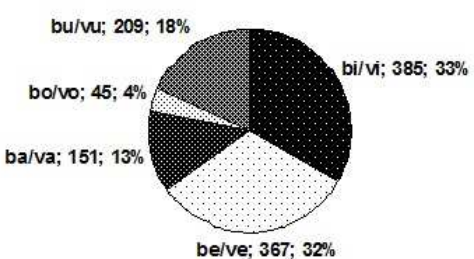
responsible for the obvious saliency of the $V \rightarrow B$ substitution (together with its rare $B \rightarrow V$ counterparts) before *i* on inscriptions.

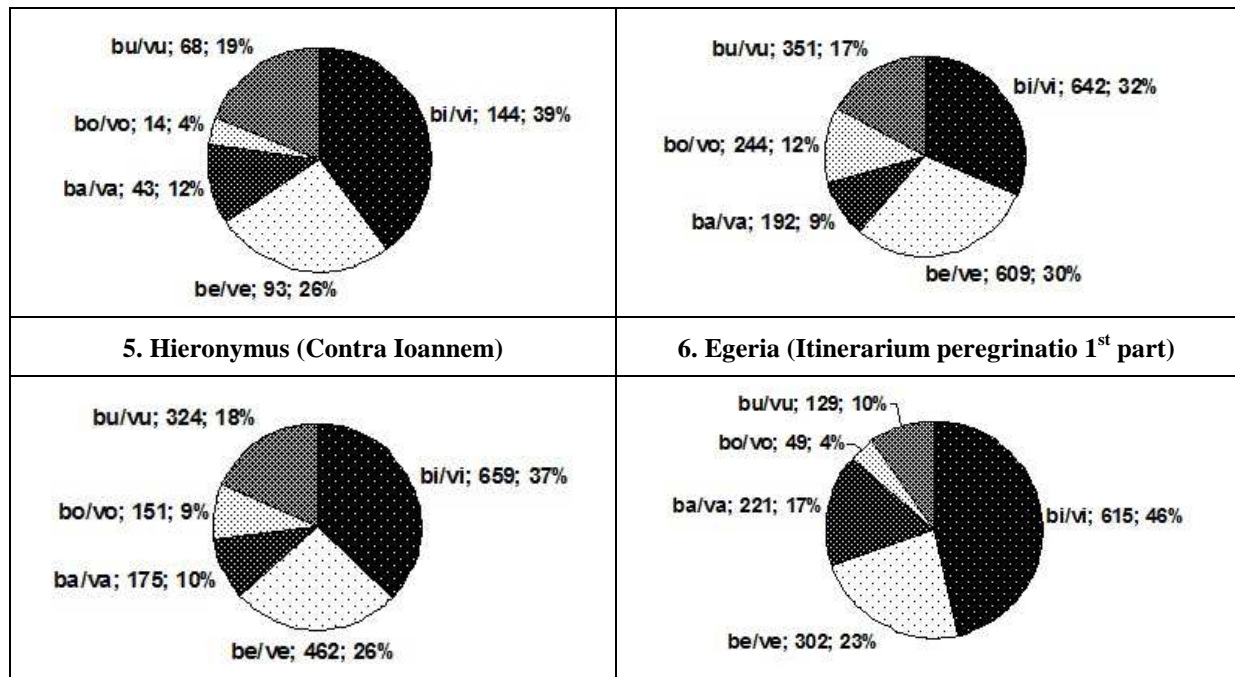
4. This consideration leads us to the question of general distribution of the different vowels (i.e. *a*, *e*, *i*, *o*, *u*) in Latin texts, i.e. to the frequency and statistics of phonemes (irrespectively of vowel length and stress). This approach was introduced in the research of Vulgar Latin phonological problems as early as in 1968 by József Herman who evidenced an uneven distribution of different vowels in a corpus of Cicero's selected letters (containing ca. 25,000 phonemes) displayed in charts 1a) and 1b) in table 2.

Table 2: General distribution of vowels <i>a</i> , <i>e</i> , <i>i</i> , <i>o</i> , <i>u</i> in Latin by Herman (1968=1990)																					
1a) Cicero's selected letters (separated)	1b) Cicero's selected letters (contracted)																				
 <table border="1"> <caption>Data for Chart 1a: Cicero's selected letters (separated)</caption> <thead> <tr> <th>Vowel</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>17%</td> </tr> <tr> <td>e</td> <td>28%</td> </tr> <tr> <td>i</td> <td>26%</td> </tr> <tr> <td>o</td> <td>14%</td> </tr> <tr> <td>u</td> <td>15%</td> </tr> </tbody> </table>	Vowel	Percentage	a	17%	e	28%	i	26%	o	14%	u	15%	 <table border="1"> <caption>Data for Chart 1b: Cicero's selected letters (contracted)</caption> <thead> <tr> <th>Vowel</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>17%</td> </tr> <tr> <td>e/i</td> <td>55%</td> </tr> <tr> <td>o/u</td> <td>28%</td> </tr> </tbody> </table>	Vowel	Percentage	a	17%	e/i	55%	o/u	28%
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By Herman's relevant research it became clear that front vowels (*e*, *i*) are generally more frequent than back vowels (*o*, *u*, *a*) in Latin, and the palatals *e* and *i* are in essence twice as frequent as the velars *o* and *u* (charts 1a) and 1b)). However, general statistics produced by Herman do not help us explain the prevalence of the B/V confusions before *i* because its rate is much higher (79% in later Sardinian inscriptions, cf. chart 3a in Table 1) than the relatively low general rate of *i* (26% in Cicero's letters, chart 1a in Table 2), irrespective of environment. This way simple statistics would rather favour Stephen's palatalization hypothesis by confirming his arguments presented earlier.

Nevertheless, we must not be discouraged by this. Instead, we should proceed to the next logical step, which is adapting the general statistics of phonemes, this time of vowels, to the problem in question. Since we are dealing with different degrees of realization of B/V confusions in different vocalic environments, so basically with differing confusion rates depending on the type of subsequent vowels, we must recon and measure not the general distribution and frequency of different vowel types in Latin texts, but a specialized vowel statistics restricted to the environment after the phonemes *b* or *v*.

Table 3: Distribution of vowels <i>a</i> , <i>e</i> , <i>i</i> , <i>o</i> , <i>u</i> after <i>b</i> or <i>v</i> in Latin																																					
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If we take a look at the charts from 1 through 5 in table 3 displaying the results of such a distributional and statistical analysis performed on selected texts of Latin literature,¹¹ we may notice that not *e* but *i* prevails after *b* or *v*. This happens in Caesar's *Bellum Gallicum* yet slightly, by 33% (vs. 32% of *e*), and in Cicero's letters, considerably, by 35% (vs. 27% of *e*), and in Augustus' *Res Gestae*, a bit more markedly, by 39 (vs. 26% of *e*); and, if we also involve two late Latin texts, in Augustine's *Contra Iulianum*, by 32% (vs. 30% of *e*), and in Jerome's *Contra Ioannem*, by 37 (vs. 26% of *e*). The pattern of distribution displayed on these charts is unmistakable and can be regarded as quite constant and systemic (and not random). Although these rates of *i* after *b/v* (between 32% and 39%) are quite high, they are obviously not high enough to account for the generally much higher rates of B/V confusions before *i* recorded from later inscriptional corpora, such as in Apulia et Calabria by 46%, in Rome by 54%, in Dalmatia by 63% and ultimately in Sardina by an overwhelming 79% (cf. diagrams 1a-4a in Table 4 below).

I was able to detect, maybe not by chance, a similarly high frequency of *i* after *b/v* by 46% (vs. 23 % of *e*) just in Egeria's diary written in an explicitly substandard late Latin (see chart 6 in Table 3 above) resembling the rate of B/V confusion before *i* recorded from late inscriptions of Apulia et Calabria (46% of *i* vs. 16 % of *e*) displayed in chart 1a) in table 4.

5. In the end, all these findings necessitated revealing the distribution, i.e. the relative frequency of vowels *i*, *e*, *a*, *o*, *u* after *b* or *v* in those inscriptional corpora from where the B/V confusions were recorded. Since in the relevant literature I was not able to find such a distributional analysis on the frequency of vowels in inscriptional corpora neither generally nor specifically after *b* or *v*, I was compelled to prepare this analysis myself with the help of electronic corpora, in this case of EDCS,¹² from where I extracted the relevant inscriptional texts of selected territorial units for such an analysis.

Since such a distributional analysis can be realized partly by manual counting of the relevant items, a procedure like this is very time-consuming. Therefore I prepared the analysis only for some restricted corpora. Sometimes the selected corpus consists of less than 200

¹¹ Based on The Latin Library (<http://www.thelatinlibrary.com/>).

¹² EDCS = Epigraphik-Datenbank Clauss / Slaby (<http://db.edcs.eu/epigr/>).

inscriptions, just like in the case of Apulia et Calabria (168 Christian inscriptions) and of Sardinia (199 Christian inscriptions), while in some cases we were able to create bigger corpora consisting of several hundreds of inscriptions, such as in the case of the Dalmatian capital Salona (727 Christian inscriptions) or Rome (916 Christian inscriptions).¹³ In any case, corpus size may not matter if it is over a minimum size (of at least 150 inscriptions) and adequate for a statistical analysis – as we shall see from the results presented in Table 4, displaying the relative frequency of B/V confusions according to subsequent vowel types and those displaying the relative frequency of vowels *i*, *e*, *a*, *o*, *u* after *b* or *v* in the relevant (Christian) inscriptional corpora as for the same selected territorial units.

Table 4: B/V confusions and <i>b/v</i> incidence in distribution of subsequent vowel types (c. 4-7 AD)	
1a) Apulia et Calabria (55 = 100%)	1b) Apulia et Calabria (272 = 100%)
2a) Dalmatia, Salona (55 = 100%)	2b) Dalmatia, Salona (897 = 100%)
3a) Sardinia (128 = 100%)	3b) Sardinia (452 = 100%)
4a) Roma (182 = 100%)	4b) Roma (1832 = 100%)

¹³ As for city Rome we confined our analysis to the inscriptions no. 4100-4999 of the 2nd volume of ICUR (= Silvagni, Angelus, 1935, *Inscriptiones Christianae Urbis romae septimo Saeculo Antiquiores* 2, Romae) where also the data for B/V confusion (displayed in diagram 4a of the Table 4) were recorded from.

Now, if we regard the parallel charts of the selected areas in Table 4, we can draw the following conclusions at least as for the later, Christian corpora which were investigated also by Stephens in his survey. As for late Apulia et Calabria (Regio II) in South Italy (charts 1a and 1b in Table 4), the 46% rate of B/V confusions before *i* considerably lags behind the 59% rate of *i* after *b* or *v* recorded from relevant Christian inscriptions (by a difference of –13 %),¹⁴ which would serve rather as a counter-argument against any palatalization hypothesis. Concerning the Dalmatian capital Salona (charts 2a and 2b in Table 4), the 62% rate of B/V confusions before *i* stands already closer to the 54 % rate of *i* after *b* or *v* recorded from relevant Christian inscriptions (by a difference of +8%). In Sardinia (charts 3a and 3b in Table 4) between the 79% rate of B/V confusions before *i* and the 73% rate of *i* after *b* or *v* there is a slight difference by +6%. In the city of Rome (charts 4a and 4b in Table 4) between the 54% rate of B/V confusions before *i* and the 52 % rate of *i* after *b* or *v* there is a negligible difference of +2%.

The concerned rate-pairs, i.e. the incidence of B/V confusions before *i* and of the incidence of phonemes *b* or *v* before *i*, show only slight differences, while both kinds of data were recorded nearly from the same corpora. If you look at these four pairs of charts in Table 4, you can notice very similar and sometimes even identical patterns of distribution as for the two phenomena concerned here. From this correspondence follows the conclusion that the merger of /w/ and /b/ to [β] (motivating the B/V confusions in spelling) happened equally in all kinds of vocalic environment, irrespective of the quality of the subsequent vowel.

At least as for the later, Christian period, we can state with great certainty that, contrary to Stephens' assumption, palatalization did not play any role in the fricativization of either the bilabial voiced stop phoneme /b/ or the labial velar semivowel phoneme /w/ to bilabial voiced fricative [β].¹⁵

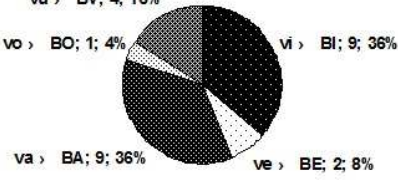
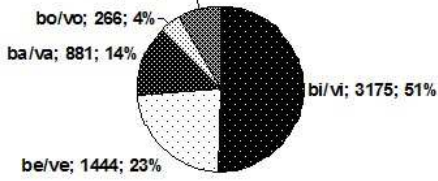
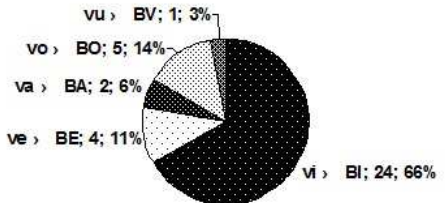
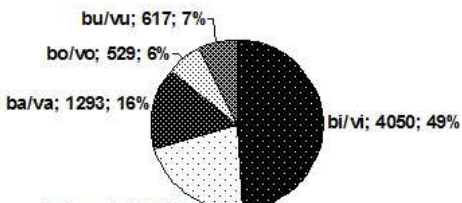
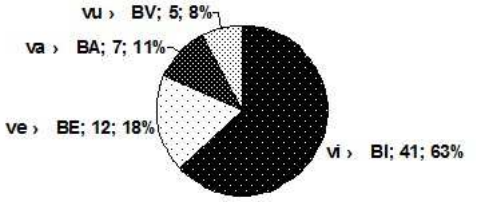
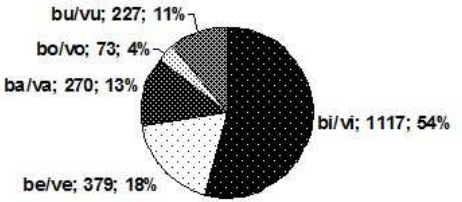
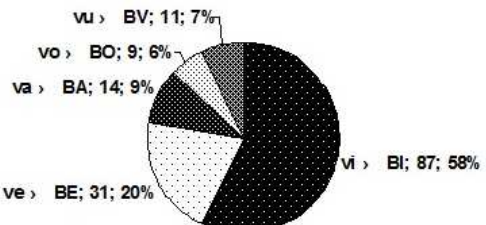
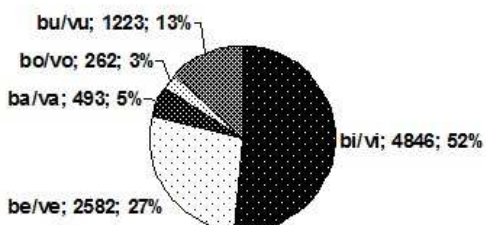
6. Before formulating our final conclusions, we must also remark that so far we have dealt with only Christian corpora, i.e. of later periods, from the 4th century until around the 7th century AD. At the same time more than quarter of all dated data for B/V confusions (327 items = 28%) recorded to date in the LLDB-Database come from the early period of the Empire, i.e. from the 1st–3rd centuries AD.¹⁶ As opposed to the later, Christian era with its sum of 858 items of B/V confusions, however, this amount of 327 items for the early, pre-Christian period is not high enough, especially if we divide them in the same territorial units (i.e. provinces or cities) as in case of the Christian period. This time we have only four provinces with more or less relevant amounts of data to be involved here: Dalmatia (included its capital Salona which was, however, treated separately as for the later period above) by 36 items, Apulia et Calabria by 25 items (both provinces processed almost completely in the LLDB) and Sardinia by 65 items (completely processed by Lupinu partly by LLDB). Apart from these three areas we have a comparatively large number of B/V confusions, i.e. 152

¹⁴ Rather a saliency of the confusions before *a* has to be recorded by a relatively high 29% rate if compared that of 15% incidence of *ba/va* in related inscriptions, which can be highlighted by the frequent use of VIVAS in late Christian texts, which is misspelled as BIBA 8 times in the relevant material.

¹⁵ Consequently also the typological arguments involved by Stephens in the problem concerned are irrelevant (e.g. Stephens 1988: 424 “Now I believe that the typology of the fricativization of [w] in the world's languages provides a key to the early stages of [-w-] > [-β-] in Latin, namely the saliency of a contiguous front vowel in addition to syllable initial position”; 1988: 426 “the cross-linguistic data which proves that palatalization, while not a necessary condition, frequently leads to the fricativization of [w]”; and 1988: 431 “The present article, thus, is evidence for the heuristic value of linguistic typology for research on languages even as long and thoroughly studied as Latin.”).

¹⁶ Later items are 858 (72%), early items 327 (28%) (1183 = 100%); from all 1247 items are undated 37, dated 1182, only 25 items belong to the 3rd–4th century and therefore excluded from the survey according to the LLDB-Database on 15.08.2016.

items from the city of Rome. However, the material of the *Urbs* is only partially processed up to now, thus every conclusion from the data recorded from there remains provisional.

Table 5: B/V confusions and <i>b/v</i> incidence in distribution of subsequent vowel types (c. 1-3 AD)	
1a) Apulia et Calabria (25 = 100%) 	1b) Apulia et Calabria (6281 = 100%) 
2a) Dalmatia (36 = 100%) 	2b) Dalmatia (8268 = 100%) 
3a) Sardinia (65 = 100%) 	3b) Sardinia (2066 = 100%) 
4a) Roma (152 = 100%) 	4b) Roma (9406 = 100%) 

Let us first see early Apulia et Calabria in South Italy (charts 1a and 1b in Table 5), where the 36% rate of B/V confusions before *i* (identical with the rate before *a*!) considerably lags behind the 51 % rate of *i* after *b* or *v* recorded from ca. 5000 non-Christian (i.e. mostly pre-Christian) inscriptions extracted from EDCS (by a difference of –15%), which would serve rather as a counter-argument against any palatalization hypothesis.¹⁷ Nevertheless, due to the relatively small amount of data (25 items), this conclusion is valid with a caveat only. As for Dalmatia (charts 2a and 2b in Table 5), which yields a bit higher number of 36 items, a prevalence of the B/V confusions before *i* by 66% has to be noticed, which is higher than the

¹⁷ A comparison of both related totalized rates as for the environment before front vowels *i* and *e* (i.e. 36%+8%=44% vs. 51%+23%=74%) would suggest the same conclusion (by a lag of 20% as for the confusions).

related 49% rate of *i* after *b* or *v* recorded from ca. 7,900 non-Christian (i.e. mostly pre-Christian) inscriptions extracted from EDCS by a difference of 17%. This could serve as an argument in favour of Stephens' palatalization hypothesis. Nevertheless, the relatively low number of relevant confusions (36 items) warns against far-reaching conclusions on one hand, while, on the other hand, it is also remarkable that the 77% totalized rate for confusions before front vowels *i* (66%) and *e* (11%) comes near to the 71% totalized rate for *i* (49%) and *e* (22%) after *b* or *v* recorded from the relevant epigraphic material. The case of Sardinia (charts 3a and 3b in Table 5) is very instructive as for the problem here concerned since, thanks to Lupinu's exhaustive data collection, we have a relatively high data figure (65 items) for B/V confusions for the first three centuries AD. The analysis of this data set reveals a prevalence of B/V confusions before *i* by 63%, which slightly exceeds the 54% rate of *i* after *b* or *v* recorded from about 1,200 non-Christian (i.e. mostly pre-Christian) inscriptions of CIL 10 as extracted from EDCS. Nevertheless, this difference of 9% between the two related rates (which stays the same in the case of the totalized rates as for the environment before front vowels: 63%+18%=81% vs. 54%+18%=72%) is not too significant (since under 10%) and consequently counts not as a decisive argument. Finally, as for the city of Rome (charts 4a and 4b in Table 5), which – despite its relatively low state of processing – is represented by a remarkable amount of 152 items in our Database for the early period, the 58% rate of B/V confusions before *i* is very near to the 52% rate of *i* after *b* or *v* recorded from about 5,000 non-Christian (i.e. mostly pre-Christian) inscriptions of CIL 6 as extracted from EDCS.¹⁸ This, by an insignificant difference of 6% between the two related rates (i.e. 58% vs. 52%), serves as a nice counter-argument to any palatalization hypotheses.¹⁹

The distributional patterns for these two issues under comparison are very similar, especially as for early imperial Rome and early imperial Sardinia, from where we have the highest data figures. The same situation was noticed as for later Rome and later Sardinia as well. Apulia et Calabria in South Italy must be a special case with its special distributional pattern displaying a saliency of the position before *a* in both pre-Christian (early) and Christian (later) periods (charts 1a in Table 4 and Table 5).

Only in the case of early imperial Dalmatia we recorded an obvious prevalence of B/V confusions before *i* by 66% in relation to the rate of general incidence of *b* or *v* before *i* in pre-Christian inscriptions by 49%. This difference of 17%, however seemingly significant at first sight, might be proved irrelevant since it decreases to 6% if we totalize the related rate figures for confusions before front vowels *i* (66%) and *e* (11%), i.e. 77% and those of general incidence of *b* or *v* before *i* (49%) and *e* (22%), i.e. 71%. This procedure is completely valid and reasonable since 89% of the Dalmatian data (32 items out of 36!) originate from the period between the middle of the second century and the end of the third century (151–300 AD, or even from narrower periods, like 161–284 or 201–300 etc.),²⁰ when the merger of short /i/ and long /e:/ (in stressed syllables) and of short /e/ (in unstressed syllables) to the closed /e/ was already taking place with great intensity in contemporary Dalmatia as evidenced by the numerous (74) items for E/I confusions.²¹ As a result, both the I in DONABIT (LLDB-30394) and E of IVBENI (LLDB-34892) were pronounced as a closed /e/, which is reflected by the form CIBES for *civis* (LLDB-9228).

¹⁸ CIL 6 = *Corpus Inscriptionum Latinarum* vol. VI, *Inscriptiones urbis Romae Latinae, Pars I*-. Berlin 1876-.

¹⁹ By comparing both related totalized rates as for the environment before front vowels *i* and *e* we can state an obvious equality (i.e. 58%+20%=78% vs. 52%+27%=79%).

²⁰ 3 items come from the 1st – 2nd centuries, and 1 item from 2nd – 3rd centuries.

²¹ According to the current data of the LLDB-Database, 74 items, i.e. 82% of all (90 = 100%) E/I confusions of purely phonetic nature come from the 2nd – 3rd centuries (14 items by 16% originate from 1st – 2nd centuries and 2 items by 2% are of 1st – 3rd centuries).

7. To sum it up, as for the 2nd – 3rd centuries, due to the contemporary merger of *e* and *i*, we are exactly in the same situation as in the case of the later, Christian period. Sardinia remains an asylum for Stephens' palatalization hypothesis but just this island fails in this respect, since, as we have seen, there is no significant saliency of the position before *i* to be recorded. Also, in the early imperial era, the merger of /w/ and /b/ to [β] (motivating the B/V confusions in spelling) might have happened (more or less) equally in all kinds of vocalic environments, irrespective of the quality of the subsequent vowel. Consequently, Stephens' palatalization hypothesis has to be rejected, and we can conclude that the same "illusion of a predominance of a following *i*", which was held by Stephens against Baehrens (as for the word-initial position), ultimately deceived Stephens himself (as for the word medial position).

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